

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for controlling production process without having resort to preparation of a calibration curve for predicting data for analysis samples, the method comprising

taking an absorbance spectrum for each of a plurality of standard samples collected from a production process step in an analysis range including near-infrared region,

constructing a data base from a differentiation curve of a near-infrared spectrum chart obtained using a plurality of production products that had been judged by conventional chemical analysis to be rated products, by calculating standard deviations and the average intensity of the standard samples (standard average intensity) in respect of each of the wave lengths selected from the spectrum included in the said analysis range at a constant interval,

taking an absorbance spectrum in the said analysis range for each analysis sample collected from the production process step and comparing the resulting absorbance spectrum with the data base,

estimating deviation (analysis deviation) of the intensity of the absorbance spectrum of each of the analysis samples (analysis intensity) at each of the said selected wave lengths from the standard average intensity,

comparing, when the absorbance spectrum includes wave length(s) at which the analysis deviation of the absorbance of the analysis sample is outside a tolerance limit determined based on the standard deviation, the wave length showing the analysis deviation of the absorbance outside the tolerance limit with production information given preliminarily in the data base in order to find out one or more control factors responsive to said analysis deviation of absorbance of the analysis sample,

estimating control data for reclaiming the production process based on the one or more control factors, and

controlling the production process so as to obtain production product within the said tolerance limit by inputting the said control data to the production process step.

2. (Previously Presented) The method as claimed in claim 1, wherein the production information stored in the data base are those of the component material corresponding to the said selected wave lengths.

3. (Previously Presented) The method as claimed in claim 2, wherein the deviations (analysis deviations) of the analysis intensities from the standard average intensity are discriminated as to whether or not they are within the tolerance limit determined based on the standard deviations given in the data base for the standard samples.

4. (Previously Presented) The method as claimed in claim 3, wherein the said analysis range is from 400 nm to 2,500 nm.

5. (Previously Presented) The method as claimed in claim 4, wherein the said analysis range is from 800 nm to 2,500 nm.

6. (Previously Presented) The method as claimed in claim 5, wherein the selected wave lengths have an interval of 10 nm or less.

7. (Previously Presented) The method as claimed in claim 6, wherein the selected wave lengths have an interval of 2 nm or less.

8. (Previously Presented) The method as claimed in claim 7, wherein the absorbance spectrum is processed by differentiation for the analysis samples.

9. (Original) The method as claimed in claim 8, wherein the absorbance spectrum is processed by building up the second derivative thereof.

10. (Previously Presented) The method as claimed in claim 9, wherein the data base is constructed from a plurality of standard samples of a plurality of kinds, by calculating the standard average intensity and standard deviations for each kind.

11. (Previously Presented) The method as claimed in claim 10, wherein absorbance spectra are obtained for a plurality of the analysis samples and

estimating the deviations of average intensities of the analysis samples (analysis average intensity) at the selected wave lengths from the standard average intensity.

12. (Previously Presented) The method as claimed in claim 1, wherein the deviations (analysis deviations) of the analysis intensities from the standard average intensity are discriminated as to whether or not they are within the tolerance limit determined based on the standard deviations given in the data base for the standard samples.

13. (Previously Presented) The method as claimed in claim 1, wherein the said analysis range is from 400 nm to 2,500 nm.

14. (Previously Presented) The method as claimed in claim 13, wherein the said analysis range is from 800 nm to 2,500 nm.

15. (Previously Presented) The method as claimed in claim 1, wherein the selected wave lengths have an interval of 10 nm or less.

16. (Previously Presented) The method as claimed in claim 15, wherein the selected wave lengths have an interval of 2 nm or less.

17. (Previously Presented) The method as claimed in claim 1, wherein the absorbance spectrum is processed by differentiation for the analysis samples.

18. (Previously Presented) The method as claimed in claim 17, wherein the absorbance spectrum is processed by building up the second derivative thereof.

19. (Previously Presented) The method as claimed in claim 1, wherein the data base is constructed from a plurality of standard samples of a plurality of kinds, by calculating the standard average intensity and standard deviations for each kind.

20. (Previously Presented) The method as claimed in claim 1, wherein absorbance spectra are obtained for a plurality of the analysis samples and estimating the deviations of average intensities of the analysis samples (analysis average intensity) at the selected wave lengths from the standard average intensity.